

**REPAIR OF PHOTOLITHOGRAPHY MASKS BY SUB-WAVELENGTH  
ARTIFICIAL GRATING TECHNOLOGY**

**ABSTRACT**

[0038] A method is disclosed for repairing mask damage defects. After determining topographical information of a defect on a mask, one or more grating repair specifications are determined based on an optical simulation using the topographical information. One or more artificial grating areas are formed on one or more sides of the defect based on the grating repair specification.